COASTAL CONSERVANCY

Staff Recommendation
December 5, 2013

SAN FRANCISCO BAY LIVING SHORELINES PROJECT

File No. 10-010-01
Project Manager: Marilyn Latta

RECOMMENDED ACTION: Authorization to disburse up to $200,000 to conduct the final three years of monitoring at the Living Shorelines project sites in San Francisco Bay on the San Rafael Shoreline (Marin County) and offshore from Eden Landing Ecological Reserve in Hayward (Alameda County).

LOCATION: Two existing subtidal project sites in San Francisco Bay: on the San Rafael Shoreline in Marin County and offshore of the Eden Landing Ecological Reserve in Alameda County.

PROGRAM CATEGORY: San Francisco Bay Area Conservancy

EXHIBITS

Exhibit 1: Project Location and Site Map

Exhibit 2: March 29, 2012 Staff Recommendation

RESOLUTION AND FINDINGS:

Staff recommends that the State Coastal Conservancy adopt the following resolution pursuant to Sections 31160 through 31165 of the Public Resources Code:

"The State Coastal Conservancy hereby modifies its August 5, 2010, December 2, 2010, and March 29, 2012 authorizations to implement the Living Shorelines project, by authorizing an additional disbursement of up to two hundred thousand dollars ($200,000) to conduct the final three years of monitoring at two pilot projects in San Francisco Bay on the San Rafael Shoreline (Marin County) and offshore from Eden Landing Ecological Reserve in Hayward (Alameda County)."

Staff further recommends that the Conservancy adopt the following findings:

"Based on the accompanying staff report and attached exhibits, the State Coastal Conservancy hereby finds that:

1. The proposed project remains consistent with Chapter 4.5 of Division 21 of the Public Resources Code, regarding the resource goals of the San Francisco Bay Area Conservancy Program.
2. The proposed project remains consistent with the Project Selection Criteria and Guidelines adopted on November 10, 2011."

PROJECT SUMMARY:

As described in the August 5, 2010, December 2, 2010, and March 29, 2012 staff recommendations (Exhibit 2), the multi-habitat Living Shorelines project integrates subtidal habitat restoration of native oyster and native eelgrass beds with designs that test the use of natural structures to buffer and protect adjacent tidal wetland sites, and areas of the San Francisco Bay shoreline vulnerable to sea level rise and shoreline erosion. At the August 5, 2010, December 2, 2010, and March 29, 2012 meetings, the Conservancy approved funding in the cumulative amount of $1,550,000: $550,000 of Conservancy funds, $700,000 of Wildlife Conservation Board (WCB) grant funds to the Conservancy, and $300,000 of U.S. Environmental Protection Agency (EPA) funds, granted to the Conservancy through the Association of Bay Area Governments (ABAG). These funds have been utilized to conduct planning, site selection, final project and monitoring design, construction of living shoreline projects at two sites and post-construction monitoring.

As now proposed, the project will be modified by authorizing an additional disbursement of up to two hundred thousand dollars ($200,000) for monitoring at the two existing project locations: on the San Rafael Shoreline in Marin County and offshore from Eden Landing Ecological Reserve in Hayward in Alameda County. This monitoring is required by the San Francisco Bay Conservation and Development Commission permit for the project and is essential to evaluating the effectiveness of these pilot Living Shorelines sites, prior to construction of larger-scale Living Shorelines projects in San Francisco Bay. The proposed monitoring will be undertaken bySan Francisco State University and other environmental services contractors retained by the Conservancy.

The Living Shorelines project is being coordinated by the Conservancy in collaboration with biological and physical scientists at San Francisco State University, the University of California at Davis, U.S. Geological Survey Western Ecological Research Center, and consultants from ESA-PWA. The Nature Conservancy (San Rafael site owner) and the Wildlife Conservation Board (Eden Landing Ecological Reserve site owner), are supportive of this project.

The original $1,550,000 authorized for this project supported the development of draft and final design documents, permitting, construction and up to two years of post-construction monitoring. The Conservancy and project consultants have made significant progress in completing the necessary project tasks. The consultants finalized the project design and monitoring program design in January 2012, and the Conservancy obtained all necessary permits for the project in July 2012. Construction occurred over a three week period in July-August 2012 at the two pilot sites, and monitoring of oyster and eelgrass success as well as a broad range of ecosystem services and species use monitoring has occurred on a bi-weekly to quarterly basis. Preliminary results include finding that more than 2.2 million native oysters that have settled onto the project

at the San Rafael site, along with bay shrimp, crabs, birds, fish, and many other species to the reefs. July 2013 monitoring data showed that eelgrass shoot densities are at ~50% (San Rafael) or 75% (Hayward) of planted densities, suggesting eelgrass has now established well at both sites. Both fish trapping and fish seining results suggest that eelgrass presence increases the diversity or abundance of fish and invertebrates present on the oyster shell reefs. A wave model was developed to quantify the change in wave energy under varying wave and water level conditions with and without the reef. Preliminary results show that while most energy is lost on the mudflats, the reef extracts 28% more energy than a mudflat at the same location.

Conservancy staff has brought in a total of $1,000,000 in outside funds for this project to date and are currently continuing to fundraise for the remainder of project management and monitoring costs beyond this current proposed authorization. The total estimate of remaining funds needed is $300,000, and Conservancy staff and project partners are submitting a variety of additional grant proposals this Fall.

Project History: As explained in the August 5, 2010, December 2, 2010, and March 29, 2012 staff recommendations, the Living Shorelines Project is part of a continuing effort by the Conservancy and the Ocean Protection Council (OPC) to promote long-term management and restoration of subtidal habitat, and pilot climate adaptation project approaches, in the San Francisco Bay. In June of 2005, the OPC authorized funds for San Francisco Bay eelgrass and native oyster projects, and in January of 2006, the OPC designated the *San Francisco Bay Subtidal Goals Project* as a high priority for ocean conservation and requested funding by the Conservancy to study and prepare a report identifying threats to the Bay ecosystem, and develop restoration and research priorities. The final report was completed in December of 2010.

The Living Shorelines Project implements specific recommendations in the *Subtidal Habitat Goals Project* (2010) and the *San Francisco Baylands Ecosystem Habitat Goals Report* (1999). In addition, the forthcoming Climate Change Science Update to the *San Francisco Baylands Ecosystem Habitat Goals Report* will recommend the use of "living shorelines" techniques to achieve multiple objectives and ecosystem services while protecting shorelines from sea level rise and wave inundation.

Site Description:

A location along a portion of the San Rafael shoreline on property owned by The Nature Conservancy is being used for the majority of the project work. In addition, a location offshore of Eden Landing Ecological Reserve, just south of the San Mateo Bridge on the east side of the Bay, is being used to evaluate recruitment of native oysters and eelgrass and their associated communities in small plots. Pending the outcome of this initial experiment, a larger scale pilot could be conducted in the future at either site.

The sites are referred to as the TNC site (San Rafael, Marin County) and ELER site (Eden Landing Ecological Reserve, Alameda County) on the Project Location and Site Map (Exhibit 1).

PROJECT FINANCING:

Funding Sources:

Conservancy (this authorization)	$200,000
Conservancy (previously authorized)	$550,000
Association of Bay Area Governments (EPA funds; previously authorized)	$300,000
Wildlife Conservation Board (previously authorized)	$700,000
Total	**$1,750,000**

The anticipated source of Conservancy funds for this grant is the fiscal year 2012/13 appropriation to the Conservancy from the "Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006" (Proposition 84). This funding source may be used for the protection of beaches, bays and coastal waters, including projects that protect and restore the natural habitat values of coastal waters, pursuant to the Conservancy's enabling legislation, Division 21 of the Public Resources Code. The proposed project serves to restore the natural habitat values of the San Francisco Bay, by bringing back native eelgrass and oyster and associated natural habitats. Moreover, this specific authorization which is for monitoring is specifically required as part of any restoration project, under the definitions found in Public Resources Code Section 75005, which requires that restoration projects include the planning, monitoring and reporting necessary to ensure successful implementation of the project objectives. In addition, as discussed below, the project is consistent with Chapter 4.5 of Division 21.

Proposition 84 also requires that for restoration projects that protect natural resources, the Conservancy assess whether the project meets at least one of the criteria specified in Section 75071(a)-(e). The proposed acquisition satisfies two of the specified criteria. The project, consistent with 75071(a), creates habitat linkages through establishment of subtidal habitat that provides linkages between the open bay and the shoreline, and, consistent with 75071(e), is funded by non-state (EPA) matching contributions toward the habitat restoration.

CONSISTENCY WITH CONSERVANCY'S ENABLING LEGISLATION:

As modified, the project remains consistent with Chapter 4.5, Sections 31160-31165, of Division 21 of the Public Resources Code regarding resource goals in the San Francisco Bay Area, as discussed in the August 5, 2010, December 2, 2010, and March 29, 2012 staff recommendations (Exhibit 2).

Under Section 31162(b), the Conservancy may undertake projects and award grants in the nine-county San Francisco Bay Area to achieve the goal of protecting, restoring and enhancing natural habitats of regional importance. Consistent with this section, the proposed project consists of work that will result in sound scientific planning and restoration project implementation to help

protect, restore and enhance subtidal habitats in an estuary of regional importance within the Bay Area.

Under Section 31163(a), the Conservancy is required to cooperate with the Bay Conservation and Development Commission (BCDC), other regional government bodies, and other interested parties in identifying and adopting long-term resource goals for San Francisco Bay area. This project is part of a program of activities that came about from the collaborative planning of four primary agencies that developed the San Francisco Bay Subtidal Habitat Goals (Conservancy, BCDC, National Oceanic and Atmospheric Association, and the San Francisco Estuary Partnership).

The proposed project is appropriate for prioritization under the selection criteria set forth in Section 31163(c) in that: (1) it is consistent with the San Francisco Bay Plan ("Bay Plan"), as described below; (2) it involves the coordination of environmental solutions across several different agencies and many different jurisdictions within the San Francisco Bay Area; (3) it will be implemented in a timely manner; (4) provides opportunities for benefits that could be lost if the project is not implemented quickly enough; and (5) includes matching funds from other sources of funding or assistance.

In addition, under Section 31165, the Conservancy may undertake projects and award grants for activities that are compatible with the preservation, restoration, or enhancement of ocean, coastal and bay resources. The proposed authorization will provide for monitoring that will serve as critical background data for future, large scale Living Shorelines projects for habitat protection, restoration and enhancement projects involving subtidal habitats in the Bay.

CONSISTENCY WITH CONSERVANCY'S STRATEGIC PLAN GOAL(S) & OBJECTIVE(S):

The proposed modified project remains consistent with goals and objectives of the Conservancy's Strategic Plan, as described in the August 5, 2010, December 2, 2010, and March 29, 2012 staff recommendations (Exhibit 2).

The Project is consistent with **Goal 11, Objective C** of the Conservancy's 2013-2018 Strategic Plan, in that it will "develop plans for enhancement of tidal wetlands….and subtidal habitat" and with **Goal 11 Objective D** of the Conservancy's 2013-2018 Strategic Plan, in that it will "enhance tidal wetlands… and subtidal habitat."

The Project is also consistent with **Goal 14, Objective B**, which encourages the Conservancy to develop projects so as to achieve annual funding targets, in that the Project will be carried out in part with outside grants that allow reimbursement of Conservancy staffing costs.

CONSISTENCY WITH CONSERVANCY'S PROJECT SELECTION CRITERIA & GUIDELINES:

The proposed modified project remains consistent with the Conservancy's Project Selection Criteria and Guidelines adopted November 10, 2011 for all of the reasons specified in the August 5, 2010, December 2, 2010, and March 29, 2012 staff recommendations (Exhibit 2).

The proposed project is consistent with the Conservancy's Project Selection Criteria and Guidelines, last updated on November 10, 2011, in the following respects:

Required Criteria

1. Promotion of the Conservancy's statutory programs and purposes: See the "Consistency with Conservancy's Enabling Legislation" section above.

2. Consistency with purposes of the funding source: See the "Project Financing" section above.

3. Support of the public: The Project is supported by the NOAA Fisheries Restoration Center, BCDC, and the San Francisco Estuary Partnership. The Project also has broad public support from non-governmental organizations such as Baykeeper and others.

4. Location: The Project is located entirely within the nine counties that make up the San Francisco Bay Area, and is carried out at two sites, consistent with Section 31162 of the Public Resources Code.

5. Need: The proposed project would not occur without Conservancy participation and funding from EPA and WCB.

6. Greater-than-local interest: This project will help develop new approaches and new techniques for restoration of subtidal habitats in San Francisco Bay. The techniques and designs resulting from the Project may have applicability at other sites in San Francisco Bay and in other estuarine systems on the Pacific Coast.

7. **Sea level rise vulnerability**: This project helps to improve resiliency of natural habitats, which is one of the overarching recommendations in climate change adaptation planning. The Project itself will not result in increased vulnerability to sea level rise.

Additional Criteria

7. Urgency: Without Conservancy involvement and prior EPA and WCB funding, the Project would not occur at this time in San Francisco Bay.

8. Resolution of more than one issue: The Project implements subtidal habitat restoration designs, tests pilot climate change adaptation techniques, and will result in lessons learned that can be applied to additional sites.

9. Leverage: The prior EPA and WCB grants help cover Conservancy staff time, maximizing leverage of staff resources with minimal Conservancy fiscal outlay.

10. Conflict Resolution: The Project involves multiple stakeholders with diverse views, and includes testing of ecosystem services that helps to address data gaps in subtidal restoration and in climate change adaptation planning.

11. Innovation: The Project is implementing recommendations in the San Francisco Bay Subtidal Habitat Goals Report and continues to build on new, innovative techniques with the San Francisco Bay Living Shorelines Project for restoration of subtidal habitats.

12. Readiness: The proposed project is ready to commence upon approval of disbursement of funding by the Conservancy.

13. Realization of prior Conservancy goals: See "Project History" section above.

14. Cooperation: The Project is a collaborative project involving many agencies. The Conservancy is the lead agency, and supporting partners include The Nature Conservancy, the Wildlife Conservation Board, San Francisco State University, University of California at Davis, United States Geological Survey, and many others.

15. Minimization of Greenhouse Gas Emissions The Project incorporates measures to minimize emissions throughout implementation of the project. Work is completed by local staff, contractors, grantees, and community volunteers that live in close proximity to the project locations. Recommended regional construction best management practices have been followed. Materials and equipment used for the project has been purchased by local vendors where feasible.

CONSISTENCY WITH SAN FRANCISCO BAY PLAN:

The San Francisco Bay Plan ("Bay Plan") was completed and adopted by BCDC in 1968 pursuant to the McAteer-Petris Act of 1965 and last amended in October 2011. The Bay Plan guides BCDC's management and permitting decisions in the Bay. The Project is consistent with the following policies articulated in Part III, Findings and Policy Section of the Bay Plan:

> Subtidal Areas Policy 5 (adopted April 2002): "The [BCDC] should continue to support and encourage expansion of scientific information on the Bay's subtidal areas, including: (a) inventory and description of the Bay's subtidal areas; (b) the relationship between the Bay's physical regime and biological populations; …(e) where and how restoration should occur."

The proposed pilot Project will assist in implementation of this policy by providing additional data on best techniques for restoration at a specific site, describe the densities, locations, and species associated with subtidal habitats at that site, and conduct five years of monitoring on herring presence before and after construction.

> Fish, Other Aquatic Organisms and Wildlife Policy 1 (amended April 2002): "To assure the benefits of fish, other aquatic organisms and wildlife for future generations, to the greatest extent feasible, the Bay's tidal marshes, tidal flats, and subtidal habitat should be conserved, restored and increased."

The Project is consistent with this policy because it will restore and increase subtidal habitat in San Francisco Bay.

COMPLIANCE WITH CEQA:

The modified project remains categorically exempt from the provisions of the California Environmental Quality Act (CEQA), for the reasons described in the August 5, 2010, December 2, 2010, and March 29, 2012 staff recommendations (Exhibit 2). Moreover, now that the scale of the pilot projects has been reduced, the modified project would also be categorically exempt

from review under CEQA Guidelines Section 15333(14 Cal. Code Regs. §15333) as a small habitat restoration project, not exceeding five acres, to assure the restoration and enhancement of habitat for fish, plants, or wildlife and with no significant adverse impact on endangered, rare or threatened species or their habitat, no known hazardous materials at or around the project site and, given the scale and methodology, no potential for cumulatively significant effects.